

SEQUENCE LISTING

<110> BACHMANN, Heinrich
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<120> BETA,BETA-CAROTENE 15,15'-MONOOXYGENASES, NUCLEIC ACID
 SEQUENCES CODING THEREFOR AND THEIR USE

<130> B,B-CAROTENE 15,15'-MONOOXYGENASES,...

<140>

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<150> 103382.0

<151> 1999-02-22

<160> 10

<170> PatentIn Ver. 2.1

<210> 1

<211> 526

<212> PRT

<213> CHICKEN

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Leu Arg Asn Gly Pro Gly Met His Thr Ile Gly Asp Thr Lys Tyr Asn
 35 40 45

His Trp Phe Asp Gly Leu Ala Leu Leu His Ser Phe Thr Phe Lys Asn
 50 55 60

Gly Glu Val Tyr Tyr Arg Ser Lys Tyr Leu Arg Ser Asp Thr Tyr Asn
 65 70 75 80

Cys Asn Ile Glu Ala Asn Arg Ile Val Val Ser Glu Phe Gly Thr Met
 85 90 95

Ala Tyr Pro Asp Pro Cys Lys Asn Ile Phe Ala Lys Ala Phe Ser Tyr
 100 105 110

105346.01503

Leu	Ser	His	Thr	Ile	Pro	Glu	Phe	Thr	Asp	Asn	Cys	Leu	Ile	Asn	Ile
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Arg	Lys	Ile	Asp	Pro	Gln	Thr	Leu	Glu	Thr	Leu	Asp	Lys	Val	Asp	Tyr
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Ser	Lys	Tyr	Val	Ala	Val	Asn	Leu	Ala	Thr	Ser	His	Pro	His	Tyr	Asp
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Thr	Glu	Asn	Tyr	Ile	Val	Phe	Ile	Glu	Gln	Pro	Phe	Lys	Leu	Asp	Ile
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Asp	Ile	Val	Ala	Tyr	Arg	Asp	Asn	Ser	Leu	Tyr	Asp	Met	Phe	Tyr	Leu
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Lys	Lys	Leu	Asp	Lys	Asp	Phe	Glu	Val	Asn	Asn	Lys	Leu	Thr	Ser	Ile
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Lys Glu Lys Asp Gly Ser Ile Tyr Cys Gln Pro Glu Ile Leu Cys Glu
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Gly Ile Glu Leu Pro Arg Val Asn Tyr Asp Tyr Asn Gly Lys Lys Tyr
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Lys Tyr Val Tyr Ala Thr Glu Val Gln Trp Ser Pro Val Pro Thr Lys
420 425 430

Ile Ala Lys Leu Asn Val Gln Thr Lys Glu Val Leu His Trp Gly Glu
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Asp His Cys Trp Pro Ser Glu Pro Ile Phe Val Pro Ser Pro Asp Ala
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Arg Glu Glu Asp Glu Gly Val Val Leu Thr Cys Val Val Val Ser Glu
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Pro Asn Lys Ala Pro Phe Leu Leu Ile Leu Asp Ala Lys Thr Phe Lys
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Glu Leu Gly Arg Ala Thr Val Asn Val Glu Met His Leu Asp Leu His
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<213> CHICKEN

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<213> CHICKEN

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<212> PRT
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<400> 4

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 Ile Gly Asp Thr Lys Tyr Asn His Trp Phe Asp Gly Leu Ala Leu Leu
 35 40 45
 His Ser Phe Thr Phe Lys Asn Gly Glu Val Tyr Tyr Arg Ser Lys Tyr
 50 55 60
 Leu Arg Ser Asp Thr Tyr Asn Cys Asn Ile Glu Ala Asn Arg Ile Val
 65 70 75 80
 Val Ser Glu Phe Gly Thr Met Ala Tyr Pro Asp Pro Cys Lys Asn Ile
 85 90 95
 Phe Ala Lys Ala Phe Ser Tyr Leu Ser His Thr Ile Pro Glu Phe Thr
 100 105 110
 Asp Asn Cys Leu Ile Asn Ile Met Lys Thr Gly Asp Asp Tyr Tyr Ala
 115 120 125
 Thr Ser Glu Thr Asn Phe Ile Arg Lys Ile Asp Pro Gln Thr Leu Glu
 130 135 140
 Thr Leu Asp Lys Val Asp Tyr Ser Lys Tyr Val Ala Val Asn Leu Ala
 145 150 155 160
 Thr Ser His Pro His Tyr Asp Ser Ala Gly Asn Ile Leu Asn Met Gly
 165 170 175
 Thr Ser Ile Val Asp Lys Gly Arg Thr Lys Tyr Val Leu Phe Lys Ile
 180 185 190
 Pro Ser Ser Val Pro Glu Lys Glu Lys Lys Lys Ser Cys Phe Lys His
 195 200 205
 Leu Glu Val Val Cys Ser Ile Pro Ser Arg Ser Leu Leu Gln Pro Ser
 210 215 220
 Tyr Tyr His Ser Phe Gly Ile Thr Glu Asn Tyr Ile Val Phe Ile Glu
 225 230 235 240
 Gln Pro Phe Lys Leu Asp Ile Val Lys Leu Ala Thr Ala Tyr Ile Arg
 245 250 255
 Gly Val Asn Trp Ala Ser Cys Leu Ser Phe His Lys Glu Asp Lys Thr
 260 265 270
 Trp Phe His Phe Val Asp Arg Lys Thr Lys Lys Glu Val Ser Thr Lys

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Glu Asp Gly His Val Val Phe Asp Ile Val Ala Tyr Arg Asp Asn Ser		
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Asn Asn Lys Leu Thr Ser Ile Pro Thr Cys Lys Arg Phe Val Val Pro		
	340	345
Leu Gln Tyr Asp Lys Asp Ala Glu Val Gly Ser Asn Leu Val Lys Leu		
	355	360
Pro Thr Ser Ala Thr Ala Val Lys Glu Lys Asp Gly Ser Ile Tyr Cys		
	370	375
Gln Pro Glu Ile Leu Cys Glu Gly Ile Glu Leu Pro Arg Val Asn Tyr		
385	390	395
Asp Tyr Asn Gly Lys Lys Tyr Lys Tyr Val Tyr Ala Thr Glu Val Gln		
	405	410
Trp Ser Pro Val Pro Thr Lys Ile Ala Lys Leu Asn Val Gln Thr Lys		
	420	425
Glu Val Leu His Trp Gly Glu Asp His Cys Trp Pro Ser Glu Pro Ile		
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Phe Val Pro Ser Pro Asp Ala Arg Glu Glu Asp Glu Gly Val Val Leu		
	450	455
Thr Cys Val Val Val Ser Glu Pro Asn Lys Ala Pro Phe Leu Leu Ile		
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Leu Asp Ala Lys Thr Phe Lys Glu Leu Gly Arg Ala Thr Val Asn Val		
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Glu Met His Leu Asp Leu His Gly Met Phe		
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Phe Glu Val Gly Ser Glu Pro Phe Tyr His Leu Phe Asp Gly Gln Ala	35	40	45
Leu Leu His Lys Phe Asp Phe Lys Glu Gly His Val Thr Tyr His Arg	50	55	60
Arg Phe Ile Arg Thr Asp Ala Tyr Val Arg Ala Met Thr Glu Lys Arg	65	70	75
Ile Val Ile Thr Glu Phe Gly Phe Thr Thr Cys Ala Phe Pro Asp Pro	85	90	95
Cys Lys Asn Ile Phe Ser Arg Phe Phe Ser Tyr Phe Arg Gly Val Glu	100	105	110
Val Thr Asp Asn Ala Leu Val Asn Val Tyr Pro Val Gly Glu Asp Tyr	115	120	125
Tyr Ala Cys Thr Glu Thr Asn Phe Ile Thr Lys Ile Asn Pro Glu Thr	130	135	140
Leu Glu Thr Ile Phe Thr Lys Gln Val Asp Leu Cys Asn Tyr Val Ser	145	150	155
Val Asn Gly Ala Thr Ala His Pro His Ile Glu Asn Asp Gly Thr Val	165	170	175
Tyr Asn Ile Gly Asn Cys Phe Gly Lys Asn Phe Ser Ile Ala Tyr Asn	180	185	190
Ile Val Lys Ile Pro Pro Leu Gln Ala Asp Lys Glu Asp Pro Ile Ser	195	200	205
Lys Phe Thr Ser Glu Ile Val Val Gln Phe Pro Cys Ser Asp Arg Phe	210	215	220
Lys Pro Ser Tyr Val His Ser Phe Gly Leu Thr Pro Asn Tyr Ile Val	225	230	235
Phe Val Glu Thr Pro Val Lys Ile Asn Leu Phe Lys Phe Leu Ser Ser	245	250	255
Trp Ser Leu Trp Gly Ala Asn Tyr Met Asp Cys Phe Glu Ser Phe Thr	260	265	270
Asn Glu Thr Met Gly Val Trp Leu His Ile Ala Asp Lys Lys Arg Lys	275	280	285

Lys Tyr Leu Asn Asn Lys Tyr Arg Thr Ser Pro Phe Asn Leu Phe His
 290 295 300

His Ile Asn Thr Tyr Glu Asp Asn Gly Phe Leu Ile Val Asp Leu Cys
 305 310 315 320

Cys Trp Lys Gly Phe Glu Phe Val Tyr Asn Tyr Phe Thr Leu Tyr Leu
 325 330 335

Ala Asn Leu Arg Glu Asn Trp Glu Glu Val Lys Lys Asn Ala Arg Lys
 340 345 350

Ala Pro Gln Pro Glu Val Arg Arg Tyr Val Leu Pro Leu Asn Ile Asp
 355 360 365

Lys Ala Asp Thr Gly Lys Asn Leu Val Thr Leu Pro Asn Thr Thr Ala
 370 375 380

Thr Ala Ile Leu Cys Ser Asp Glu Phe Thr Thr Ile Trp Leu Glu Pro
 385 390 395 400

Glu Val Leu Phe Ser Gly Pro Arg Gln Ala Phe Glu Phe Pro Gln Ile
 405 410 415

Asn Tyr Gln Lys Tyr Cys Gly Lys Pro Tyr Thr Tyr Ala Tyr Gly Leu
 420 425 430

Gly Leu Asn His Phe Val Pro Asp Arg Leu Cys Lys Leu Asn Val Lys
 435 440 445

Thr Lys Glu Thr Trp Phe Thr Val Trp Gln Glu Pro Asp Ser Tyr Pro
 450 455 460

Ser Glu Pro Ile Phe Val Ser His Pro Asp Ala Leu Glu Glu Asp Asp
 465 470 475 480

Gly Val Val Leu Ser Val Val Val Ser Pro Gly Ala Gly Gln Lys Pro
 485 490 495

Ala Tyr Leu Leu Ile Leu Asn Ala Lys Asp Leu Ser Glu Val Ala Arg
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Ala Glu Phe Thr Val Glu Ile Asn Ile Pro Val Thr Phe His Gly Leu
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<210> 6
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<212> PRT
<213> CHICKEN

<400> 6

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Leu Pro

<210> 7
<211> 18
<212> PRT
<213> CHICKEN

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Leu Pro

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<213> Artificial Sequence

<220>
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